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动物分类学报

A NEW SPECIES AND TWO NEWLY RECORD SPECIES OF PODAGRION SPINOLA FROM CHINA (HYMENOPTERA, TORYMIDAE)

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Abstract One new species, *Podagrion breviveinus* sp. nov., and two newly recorded species, *P. isos* Grissell & Goodpasture and *P. keralensis* Narendran are reported from China. A key to these species is given. The type specimens are deposited in the Zoological Museum, Institute of Zoology, Chinese Academy of Science.
Key words Torymidae, *Podagrion*, new species, new record, China.

Podagrion is close to *Palmon* Dalman (Grissell & Goodpasture), but can be distinguished by the following characters: *Podagrion* with anellus transverse, metasternum with 1 metasternal carina between metacoxae; *Palmon* with anellus cylindrical and longer than width, metasternum with 2 metasternal carinae.

Podagrion distributes widely in the world with 97 described species (Noyes, 2002). 17 species have been recorded in China till now (7 in mainland and 10 in Taiwan of China). In this study, one new species, *Podagrion breviveinus* sp. nov., is described and two newly recorded species, *P. isos* Grissell & Goodpasture and *P. keralensis* Narendran, are reported from China. A key to these species is given here with the other two recorded species, *P. mantis* Ashmead and *P. fulvipes* (Holmgren).

Morphological terminology follows that of Gary Gibson (1997). Length of specimen does not include the length of ovipositor sheaths. Body length and ovipositor length are measured in millimeters (mm), other measures are relative. The type specimens and all materials were deposited in Institute of Zoology, Chinese Academy of Sciences (IZCAS).

Podagrion **Spinola, 1811**

Podagrion Spinola, 1811: 147. Type-species: *P. splendens* Spinola; by monotype.
Priomerus Walker, 1833: 116, 118. Type-species: *P. pachymerus* Walker; by monotype. Synonymized by Walker, 1871: 28.
Pachytomus Westwood, 1847: 260. Type-species: *P. klugianus* Westwood; by monotype. Synonymized by Mayr, 1874: 63.
Bactyrichion Costa, 1857: 223-225. Type-species: *B. bicoloratum* Costa; by monotype. Synonymized by Walker, 1871: 28.
Blephonira Holmgren, 1869: 438. Type-species: *B. fulvipes* Holmgren; by monotype. Synonymized by Ashmead, 1904: 368.
Cleptinorpha Walker, 1872: 85. Type-species: *C. binotata* Walker; by monotype. Synonymized by Graham, 1981: 5-6.
Cyanostola Saussure, 1890: 15. Type-species: *C. coerulea* Saussure; by monotype (illustration only). Synonymized by Fernière, 1955: 207.
Coquerelia Saussure, 1890: 20. Type-species: *C. insidiosa* Saussure; by monotype (illustration only). Synonymized by Masi, 1940: 251.
Podagrium Schulz, 1906: 150. Invalid emendation.
Pachytomoidella Girault, 1913: 40. Type-species: *P. magnidavus* Girault; by original designation and monotype. Synonymized by Baltazar, 1966: 137.
Propodagrion Girault, 1915: 287. Type-species: *P. worcesteri* Girault; by original designation and monotype. Synonymized by Baltazar, 1966: 137.
Coquereliana Gahan & Fagan, 1923: 39. Objective replacement name for *Coquerelia* Saussure nec Kraatz.

Generic diagnosis. Head subround, frons slightly depressed; antenna inserted in the middle of face; formula 11173, club usually expanded. Scutellum without delimited frenal area; propodeum with two divergent carinae (inverted 'V' shape or inverted 'Y' shape). Metacoxa and metafemur swollen; metafemur with a row of teeth ventrally. Gaster slightly compressed in lateral view; first and a few following tergites notched medially; ovipositor always much longer than gaster.

Biology. All species are exclusively parasites within mantid egg cases (mantodea).

Key to some species of *Podagrion* from China (Female)

1. Propodeum with two divergent carinae as an inverted 'V' shape (Fig. 1) …… Podagrion mantis **Ashmead**
   Propodeum with two divergent carinae as an inverted 'Y' shape … 2
2. Pair of submedian carinae meeting at right angle, equal to 90° (Fig. 3) …… Podagrion isos **Grissell & Goodpasture**
   Pair of submedian carinae meeting at acute angle, distinctly less than 90° …… 3
3. Flagellum strongly clavate; club length longer than F3-F7 combined (Fig. 5); ovipositor sheaths as long as body length …… Podagrion keralensis **Narendran**
   Flagellum not clavate; club length distinctly shorter than F3-F7 combined; ovipositor sheaths much longer than body length …… 4
4. Ovipositor sheaths 1.5× as long as body length; marginal vein about 8× as long as postmarginal vein (Fig. 10) …… Podagrion breviveinus **sp. nov.**
   Ovipositor sheaths 1.2× as long as body length; marginal vein about 4× as long as postmarginal vein …… Podagrion fulvipes (**Holmgren**)

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1 Podagrion isos **Grissell & Goodpasture New recorded to China** (Figs. 2-3)

Podagrion isos Grissell & Goodpasture, 1981: 234.

Female. Body length 3.1-3.5 mm. Ovipositor sheaths 3.5-4.0 mm. Head and thorax including propodeum dark-green; gaster aeneous with metal reflections. Antenna yellow except club yellowish brown. Legs yellow except metacoxa concolorous with thorax, metafemur brown. Tegula yellowish brown. Wing hyaline, veins brown.

Head in front view with face reticulate and pilose; eyes separated by about own height, with inner orbits subparallel. Clypeus with lower margin truncate. Antenna (Fig. 2) formula 11173, scape not reaching median ocellus, flagellum clavate; pedicel longer than broad; F1 broader than pedicel, F1-F3 a little longer than wide, F4 and F5 quadrate, F6 and F7 transverse; each funicle segment with 2 rows of sensilla; club length equal to F3-F7 combined, micropilose area over most of ventral aspect of club. Head in dorsal view broader than thorax, vertex regularly, densely reticulate, occipital carina strong. Relative measurements: head width 59, height 49, dorsal length 29, eye height 32, eye space 31, eye dorsal length 12, malar space 11, temple 7, POL: OOL as 13: 4, antenna length 93, scape length: width as 19: 5, pedicel in lateral view length: width as 7: 4, length ratio F1 through F7 as 6.5: 7.0: 6.0: 5.0: 5.0: 4.0: 4.0, F1 length: width as 6.5: 5.0, F7 length: width as 4: 7.

Thorax reticulate; pronotum slightly narrowed medially; mesoscutum not convex, notauli complete; scutellun dorsallum shiny, frenal line absent, frenum indicated by very weak, almost smooth sculpture. Propodeum (Fig. 3) sculptured densely, and with a row of fovea along base; a median longitudinal carina forks into an inverted 'Y' shape; pair of submedian carinae meeting at right angle. Fore wing hairy outside speculum, costal cell with 2 rows of setae along border (partial 3 rows distally); basal cell bare and speculum close below; basal vein and cubital vein setose. Petiole short, scarcely visible in dorsal view; gaster ovate, 2.9-3.0 × as long as broad. Relative measurements: pronotum length: width as 20: 48, mesoscutum length: width as 26: 48, scutellum length: width as 31: 30, marginal vein 39, postmarginal vein 10, stigmal vein 4, gaster length: width as 100: 34.

Male. Unknown.

Materials examined. 1♀, China, Beijing, Daxing, 4 July 1983, coll. HUANG Dar-Wei; 2♀♀, China, Shandong, Fushan, 27 May 1958, coll. MAO Jin-Long; 2♀♀, China, Shandong, Longkou, 10 May 1955, coll. ZHANG Dai-Xiang; 6♀♀, China, Shaanxi, Huanglong Mt., 2 Mar. 1981, coll. ZHU Jian; 8♀♀, China, Yunnan, Gejiu, 28 June 1969, coll. LIAO Ding-Xi.

Biology. Host unknown.

Distribution. China (Beijing, Shandong, Shaanxi, Yunnan), USA (Florida).

2 Podagrion keralensis **Narendran New recorded to China** (Figs. 4-6)

Podagrion keralensis Narendran, 1994: 69-70.

Female. Body length 2.7-3.0 mm. Ovipositor sheaths 2.5-3.0 mm. Head and thorax including propodeum dark-green; gaster brown with metallic bluish green reflections. Antenna with scape yellowish brown, flagellum brown except club brownish black. Foreleg and midleg including coxae yellowish brown with tarsi lighter, metacoxa concolorous with thorax, metafemur dark-brown with slight metallic green reflections, metatibia brown and metatarsi yellowish brown. Tegula brown. Wing hyaline, veins yellowish brown.

Head in front view with face reticulate and lower face densely pilose; eyes separated by about 0.9× their height, with inner orbits ventrally slightly diverging. Clypeus with lower margin truncate. Antenna (Fig. 5) formula 11173, scape reaching median ocellus but not exceeding, flagellum strongly clavate; pedicel 1.8 × as long as width; funicular segments become wider and shorter towards tip. F1 slightly shorter than pedicel, F1-F3 longer than wide, F4 quadrate, F5-F7 transverse; each funicle segment with 2 rows of sensilla; club length longer than F3-F7 combined, micropilose area over most of ventral aspect of club. Head in dorsal view (Fig. 4) broader than thorax, vertex regularly, densely reticulate, occipital carina strong. Relative measurements: head width 53, height 45, dorsal length 26, eye height 30, eye space 27, eye dorsal length 22, malar space 11, temple 4, POL: OOL as 11.0: 2.5, antenna length 88, scape length: width as 20: 6, pedicel in lateral view length: width as 8.0: 4.5, length ratio F1 through F7 as 6.0: 6.0: 5.5: 5.0: 4.0: 3.5: 3.5, F1 length: width as 6: 4, F7 length: width as 3.5: 7.0.

Thorax reticulate, entire dorsal surface evenly pilose; pronotum slightly narrowed medially; mesoscutum flat, notauli complete; scutellun not convex, at level with mesoscutum, frenal line absent, frenum shiny and smooth. Propodeum (Fig. 6) rugulose and reticulate, with a row of fovea along base; a median longitudinal carina forks into an inverted 'Y' shape; pair of submedian carinae meeting at acute angle, and with symmetrical longitudinal carinae behind submedian carina. Fore wing hairy outside speculum, costal cell with 1 row of setae along border in anterior 2/3, densely setose in postetior 1/3; basal cell with 2-3 setae and speculum close below; basal vein and cubital vein setose. Petiole visible in dorsal view; gaster ovate, 3.5-3.6× as long as broad. Relative measurements: pronotum length: width as 10: 40, mesoscutum length: width as 25: 45, scutellum width: length as 26: 25, marginal vein 47, postmarginal vein 8, stigmal vein 4, gaster length: width

as 71: 20.

Male. Unknown.

Materials examined. 5♀♀, China, Hunan, Dao Xian, 11 May 1979, coll. LIAO Ding-Xi.

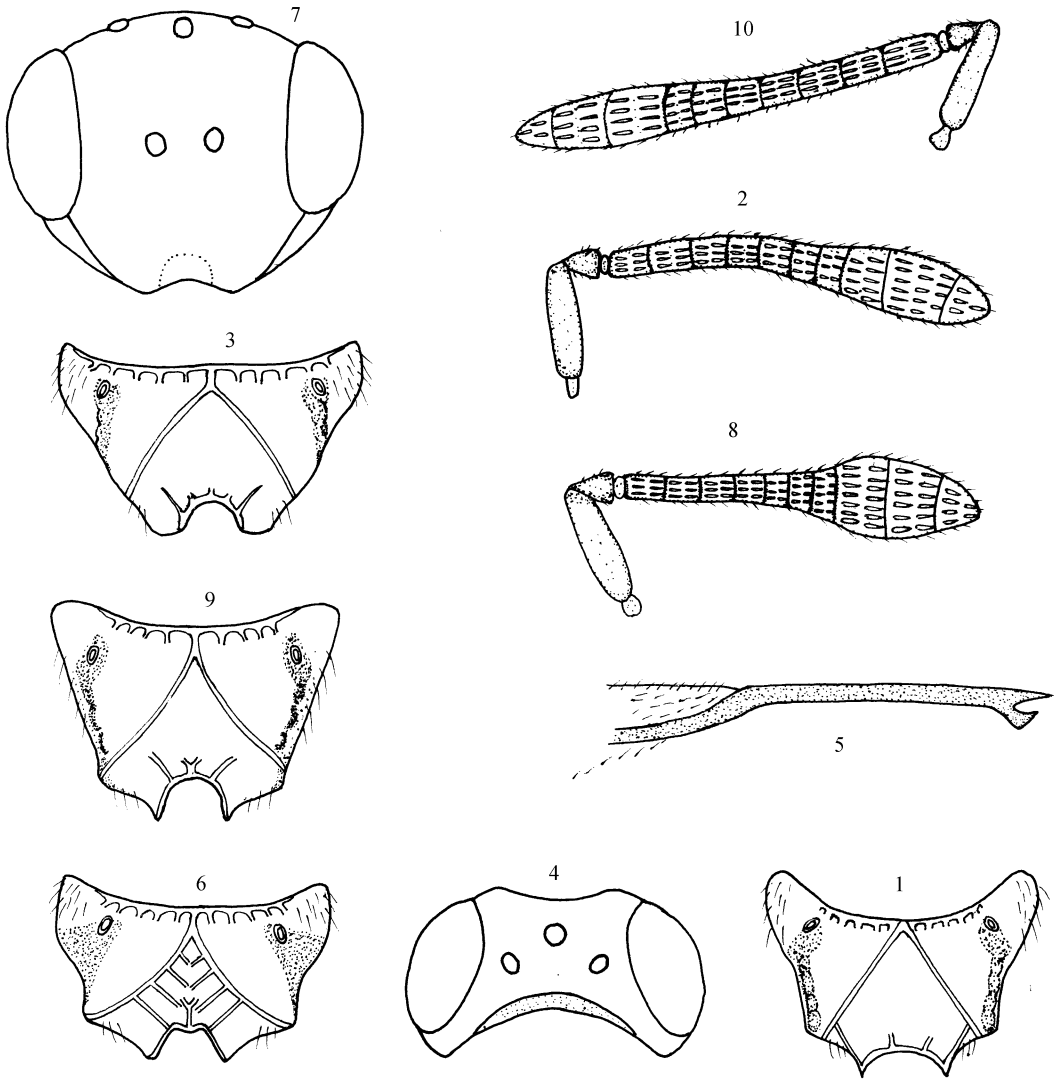
Biology. Host unknown.

Distribution. China (Hunan); India (Kerala and Tamil Naud).

3 Podagrion breviveinus **sp. nov.** (Figs. 7-10)

Female. Body length 2.8 mm. Ovipositor sheaths 4.2 mm. Head and thorax including propodeum bluish green; gaster with green brilliance, anterior half yellowish and posterior half dark-brown. Antenna yellowish brown except club brownish black. Procoxae and metacoxae concolorous with thorax, metafemur dark-brown with metallic reflection, others yellow. Tegula yellow. Wing hyaline, veins yellowish brown.

Head in front view (Fig. 7) with face reticulate and lower face densely pilose; eyes separated by about 1.2× their height, with inner orbits subparallel. Torulus insertion distinctly above ventral eye margin. Antenna (Fig. 8) formula 11 173, scape reaching median ocellus but not exceeding, flagellum not clavate; pedicel 1.6× as long as width; funicular segments become shorter towards tip. F1-F5 longer than wide, F6 slightly wider than length and F7 transverse; each funicle segment with 2 rows of sensilla; club length distinctly shorter than F3-F7 combined, micropilose area over ventral aspect of club. Head in dorsal view broader than thorax, vertex regularly, densely reticulate, occipital carina strong. Relative measurements: head width 57, height 43, dorsal length 30, eye height 27, eye space 32, eye dorsal length 20, malar space 14, temple 8, POL: OOL as 12: 5, antenna length 101, scape length: width as 19: 4, pedicel in lateral view length: width as 8: 5, length ratio F1 through F7 as 8.5: 7.5: 7.0: 6.5: 6.5: 5.5: 4.5, F1



Figs 1-10. *Podagrion mantis* Ashmead ♀. Propodeum in dorsal view. Figs 2-3. *Podagrion isos* Grissell & Goodpasture ♀. 2. Antenna. 3. Propodeum in dorsal view. Figs. 4-6. *Podagrion keralensis* Narendran ♀. 4. Head in dorsal view. 5. Antenna. 6. Propodeum in dorsal view. Figs. 7-10. *Podagrion breviveinus* sp. nov. ♀. 7. Head in front view. 8. Antenna. 9. Propodeum in dorsal view. 10. Fore wing.

length: width as 8.5: 5.0, F7 length: width as 4.5: 7.0.

Thorax reticulate, entire dorsal surface evenly pilose; pronotum not narrowed medially; mesoscutum flat, notauli complete; scutellun not convex, at level with mesoscutum, frenal line absent, frenum smooth and with several setae. Propodeum (Fig. 9) rugulose and reticulate, with a row of fovea along base; a median longitudinal carina forks into inverted 'Y' shape; pair of submedian carinae meeting at acute angle. Fore wing (Fig. 10) hairy outside speculum, costal cell with 1 row of setae, densely setose distally; basal cell bare and speculum close below; basal vein and cubital vein setose. Petiole clearly visible in dorsal view; gaster ovate, 3.7× as long as broad. Relative measurements: pronotum length: width as 18: 42, mesoscutum length: width as 28: 47, scutellum width: length as 27: 27, marginal vein 43, postmarginal vein 5, stigmal vein 4, gaster length: width as 93: 25.

Male. Unknown.

Etymology. The new species is named from the Latin words "*brevi*" (= short) plus "veinus".

Holotype ♀, China, Beijing, 16 May 1955, coll. ZHANG Dai-Xiang. Paratypes: 18♀♀, same data as holotype; 3♀♀, China, Shaanxi, Meixian, June 1980, coll. DANG Xin-De.

Biology. Host unknown.

Distribution. China (Beijing, Shaanxi).

The new species differs from *P. fulvipes* (Holmgren) as mentioned in the key. It is distinguished from *P. isos* Grissell & Goodpasture by pair of submedian carinae meeting at acute angle, marginal vein a little longer than 8× postmargianl vein. It is distinguished from *P. keralensis* Narendran by ovipositor sheaths nearly 1.5× as long as body length, antenna not clavate.

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中国螳小蜂属一新种及二新纪录种 (膜翅目, 长尾小蜂科)

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摘 要 研究了长尾小蜂科长尾小蜂亚科螳小蜂属 *Podagrion* Spinola, 1811, 描述 1 新种短脉螳小蜂 *Podagrion breviveinus* sp. nov. 及 2 新纪录种拟螳小蜂 *Podagrion isos* Grissell & Goodpasture 和喀拉拉螳小蜂 *Podagrion keralensis* Narendran。新种短脉螳小蜂 *Podagrion breviveinus* sp. nov. 与其它两种的主要区别是: 触角棒节不膨大, 棒节长度明显短于 F3-F7 长度之和; 并胸腹节 2 条亚中脊之间的夹角为锐角; 前翅缘脉为后缘脉的 8 倍; 产卵鞘长度约为体长的 1.5 倍。模式标本保存于中国科学院动物研究所动物标本馆。

关键词 长尾小蜂科, 螳小蜂属, 新种, 新纪录种, 中国.
中图分类号 Q969.54

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